

Notice of Allowability

Application No.

10/648,984

Examiner

Anne R. Kubelik

Applicant(s)

LEBEL ET AL.

Art Unit

1638

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to ____.
2. ☒ The allowed claim(s) is/are 27-29.
3. ☐ The drawings filed on ____ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
(b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date ____ |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date ____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other ____ |

Examiner's Amendment

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mary Kakefuda on 22 June 2005.

IN THE CLAIMS:

27. (Currently amended) A plant comprising in its plastid genome ~~comprising~~ a first expression cassette comprising a plastid promoter operably linked to a nucleotide sequence encoding a trehalose 6-phosphate synthase ~~under control of a promoter capable of directing the expression of said nucleotide sequence in a plastid of said plant~~ and second expression cassette comprising a plastid promoter operably linked to a nucleotide sequence encoding a trehalose-6-phosphate phosphatase ~~under control of a promoter capable of directing the expression of said nucleotide sequence in a plastid of said plant~~, wherein said plant produces trehalose.

28. (Currently amended) A plant comprising in its plastid genome ~~comprising~~ an expression cassette comprising a first nucleotide sequence encoding a trehalose 6-phosphate synthase and a second nucleotide sequence trehalose-6-phosphate phosphatase, wherein said plant produces trehalose.

29. (Currently amended) A The plant according to claim 28, wherein said first and second nucleotide sequences are transcribed from a single promoter in an operon-like polycistronic

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gene, wherein said promoter is capable of directing the expression of said ~~operon-like~~ ~~polyeistonic gene~~ first and second nucleotide sequences in a plastid of said plant, and wherein said plant produces trehalose.

IN THE ABSTRACT:

The invention provides novel stress tolerant transgenic plants which express trehalose 6-phosphate synthase and trehalose-6-phosphate phosphatase in their plastids, ~~including plants in which the enzyme is expressed under control of an inducible or tissue-specific promoter through use of a nuclear-encoded transactivator.~~

Examiner's Statement Of Reasons For Allowance

2. The following is an examiner's statement of reasons for allowance: Claims 27-29 are free of the prior art, given the failure of the prior art to teach or suggest plants whose plastids are transformed with an expression cassette comprising a nucleic acid encoding an trehalose-6-phosphate synthase (TPS) and trehalose-6-phosphate phosphatase (TPP) expressed from a plastid promoter. The closest prior art is as follows:

Goddijn et al (1997, Plant Physiol. 113:181-190) disclose drought resistant tobacco plants and seeds transformed with an expression cassette comprising a nucleic acid encoding *E. coli* TSP or TPP expressed from the CaMV 35S promoter (pg 184-187). Goddijn et al do not disclose plants whose plastids have been transformed with a nucleic acid encoding TPS and TPP.

Daniell et al (US Patent 5,693,507, filed January, 1991) teach plastid transformation of plants (claims 22-23; column 9, line 55, to column 15, line 60).

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At the time the invention was made, it would not have been obvious to one of ordinary skill in the art to modify the method of producing drought tolerant plants as taught by Goddijn et al, to express a nucleic acid encoding TPS and TPP in plant plastids. Although Daniell et al suggest transforming plant plastids with genes providing drought tolerance (column 6, line 61), the expression of TPS and TPP is not suggested.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anne R. Kubelik, whose telephone number is (571) 272-0801. The examiner can normally be reached Monday through Friday, 8:30 am - 5:00 pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amy Nelson, can be reached at (571) 272-0804. The central fax number for official correspondence is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.

Anne R. Kubelik, Ph.D.
June 22, 2005



**ANNE KUBELIK, PH.D.
PRIMARY EXAMINER**